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A New Species of *Lespedeza* (Leguminosae) from Japan

Tomoyuki NEMOTO[a] and Hiroyoshi OHASHI[b]

[a]Department of Basic Sciences, Faculty of Science and Engineering,
Ishinomaki Senshu University, Ishinomaki, 986-8580 JAPAN;
[b]Biological Institute, Graduate School of Science, Tohoku University, Sendai, 980-8578 JAPAN

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Lespedeza davurica (Laxm.) Schindl. reported by Nakai (1932) from Kanagawa Prefecture in Japan was taxonomically revised. The specimens corresponding to the species sensu Nakai were collected only in Hiratsuka and Hayama in Kanagawa Pref. and Kamata in the Tokyo metropolitan area more than 60 years ago. These specimens differ from the true *L. davurica* and its allied species, *L. inschanica* (Maxim.) Schindl., *L. juncea* (L.f.) Pers. and *L. cuneata* (Dum.Cours.) G.Don, mainly in the features of leaves, inflorescences and flowers, and they were regarded as a new species, *L. hisauchii* T.Nemoto & H.Ohashi. It belongs to subgenus Lespedeza in having cleistogamous flowers. This new species shows very low pollen stainability of less than 1%, which suggests the possibility that the original plants might be hybrid origin, polyploid or apomictic. Further researches are needed to clarify the reproduction and relationships of the new species based on fresh materials.

Key words: Japan, Leguminosae, *Lespedeza*, *Lespedeza davurica*, *Lespedeza hisauchii*

Lespedeza davurica (Laxm.) Schindl. is based on *Trifolium dauricum* which was described on the basis of Siberian plants by Laxmann (1771). This species is continuously distributed from Kirgizstan to SE Siberia through Mongolia in Northern Eurasia (Yakovlev et al. 1996) and mainland China (Li and Chen 1995) and Korean Archipelago (Nakai 1927, Lee 1965), and it is recognized as disjunctively distributed in Japan (Nakai 1932, Ohwi 1953, 1965a, 1965b, 1975, Date 1958, Kitamura and Murata 1961, 1979, Ohwi and Kitagawa 1983, Hamaguchi 1988) and Taiwan (Hosokawa 1933, Huang and Ohashi 1977, 1993, Ohashi et al. 1988, Li and Chen 1995). The Taiwanese plants have often been distinguished as var. *shimadae* (Hosokawa 1933, Huang and Ohashi 1977, Li and Chen 1995). The species in Japan is often regarded to be introduced (Hiyama 1959, Tobe et al. 1968, 1987, Osada 1972).

The natural occurrence of *L. davurica* in Japan was first reported by Nakai (1932) based on a specimen collected by the late Professor Kiyotaka Hisauchi from Hiratsuka of Kanagawa Prefecture in Kanto District. This identification has been accepted by Ohwi (1953, 1965a, 1965b, 1975), Kitamura and Murata (1961, 1979), Osada (1972), Ohwi and Kitagawa (1983) and Hamaguchi (1988). On the other hand, Ohwi (1965a) mentioned the possibility that the plant is not indigenous. Moreover, Hiyama (1959) and Tobe et al. (1968, 1987) also reported the species from Maebashi City in Gunma Prefecture as an introduced plant.

During our taxonomic studies on *Lespe-*

deza, especially subgenus Lespedeza, we found that *L. davurica* reported from Japan by Nakai (1932) does not correspond to the typical *L. davurica*. The present study is, therefore, intended to clarify the taxonomic nature of the plant recorded in Japan.

When Nakai (1932) newly reported *L. davurica* from Japan, he cited a specimen "Prov. Sagami: in arenosis Hiratsuka (K. Hisauchi)." In TI there is a species cover of Japanese *L. davurica* which includes four specimens collected from Hiratsuka before 1932: K. Hisauchi 10 June 1928 (in sterile); K. Hisauchi 12 Sept. 1930 (with flowers); K. Hisauchi 10 Sept. 1931 (with flowers); and Y. Momiyama 58, 20 Sep. 1930 (in sterile). The K. Hisauchi 10 Sept. 1931 was prepared from plants cultivated in Tokyo, but, according to Hisauchi's label, the plant was originated from Hiratsuka. Among these four specimens only the K. Hisauchi 12 Sep. 1930 was identified as "*L. daurica* Schindl." by Nakai (Fig. 1, note the Nakai's handwriting), which may suggest the possibility that Nakai (1932) based at least on this material when he reported *L. davurica* from Japan.

After examining external morphology, it becomes clear that the K. Hisauchi 12 Sep. 1930 (TI) is different from the typical *L. davurica* from Russian Siberia, Mongolia, mainland China and Taiwan in leaves, inflorescences and flowers. The typical *L. davurica* is characterized by leaflets glabrous above and with more conspicuous lateral veins, the rachis of terminal leaflet as long as 0.4–1.3 times of the length of petiole, inflorescences with 10–16 flowers, bracteoles (1.5–)2.0–4.0 mm long, longer than calyx tube and sometimes up to 0.5 times of the length of calyx, calyx as long as 0.5–1.0 times of the length of corolla (Fig. 2A). On the other hand, the K. Hisauchi 12 Sep. 1930 (TI) has leaflets puberulent above and with inconspicuous lateral veins, the rachis of terminal leaflet as long as 0.3–0.5 times of the length of petiole, inflorescences with 4–8 flowers, bracteoles 1.0–1.5 mm long, almost equal to calyx tube, calyx almost half of the length of corolla (Fig. 3). Moreover, the examination of flowers in detail represented additional differences between them in the shape of lateral calyx lobe, the degree of division of upper calyx lobe and the relative length of wing to keel-petal, i.e., lateral calyx lobes are lanceolate or triangular-lanceolate and with acuminate apex, the upper calyx lobe is divided more than half of the length and wings are shorter than keel-petals in *L. davurica* (Fig. 2), while lateral calyx lobes are narrowly triangular and with acute apex, the upper calyx lobe is divided less than half of the length and wings are almost equal to keel-petals in length in the K. Hisauchi 12 Sep. 1930 (Fig. 3). In addition, the latter specimen has multicellular glandular hairs in inflorescences, especially on pedicels, mixed with simple unicellular trichomes.

The K. Hisauchi 10 Sept. 1931 (TI) share all those characteristics with the Hisauchi 12 Sep. 1930 (TI). Although the K. Hisauchi 10 June 1928 (TI) and the Y. Momiyama 58, 20 Sep. 1930 (TI) are in sterile, the latter share the hairiness of leaflet above with the K. Hisauchi 12 Sep. 1930 (TI), while the former is different from it in having leaflets glabrous above. We regard the K. Hisauchi 10 June 1928 (TI) as *L. juncea* (L.f.) Pers.

Osada (1972) cited a specimen of *L. davurica* from TNS. It is "K. Hisauchi, X 1630, TNS 35893" collected in Hiratsuka. In TNS we found one specimen (K. Hisauchi 15 Sep. 1930, TNS 35893) with flowers, which appears to be identical with the specimen cited by Osada (1972) although the date of collection is different between them. This specimen was identified as "*Lespedeza daurica*" by Nakai, and it is very similar to the K. Hisauchi 12 Sep. 1930 (TI) in the features of leaflets, inflorescences, flowers and glandular hairs. In MAK and TAI, moreover, we found other two specimens

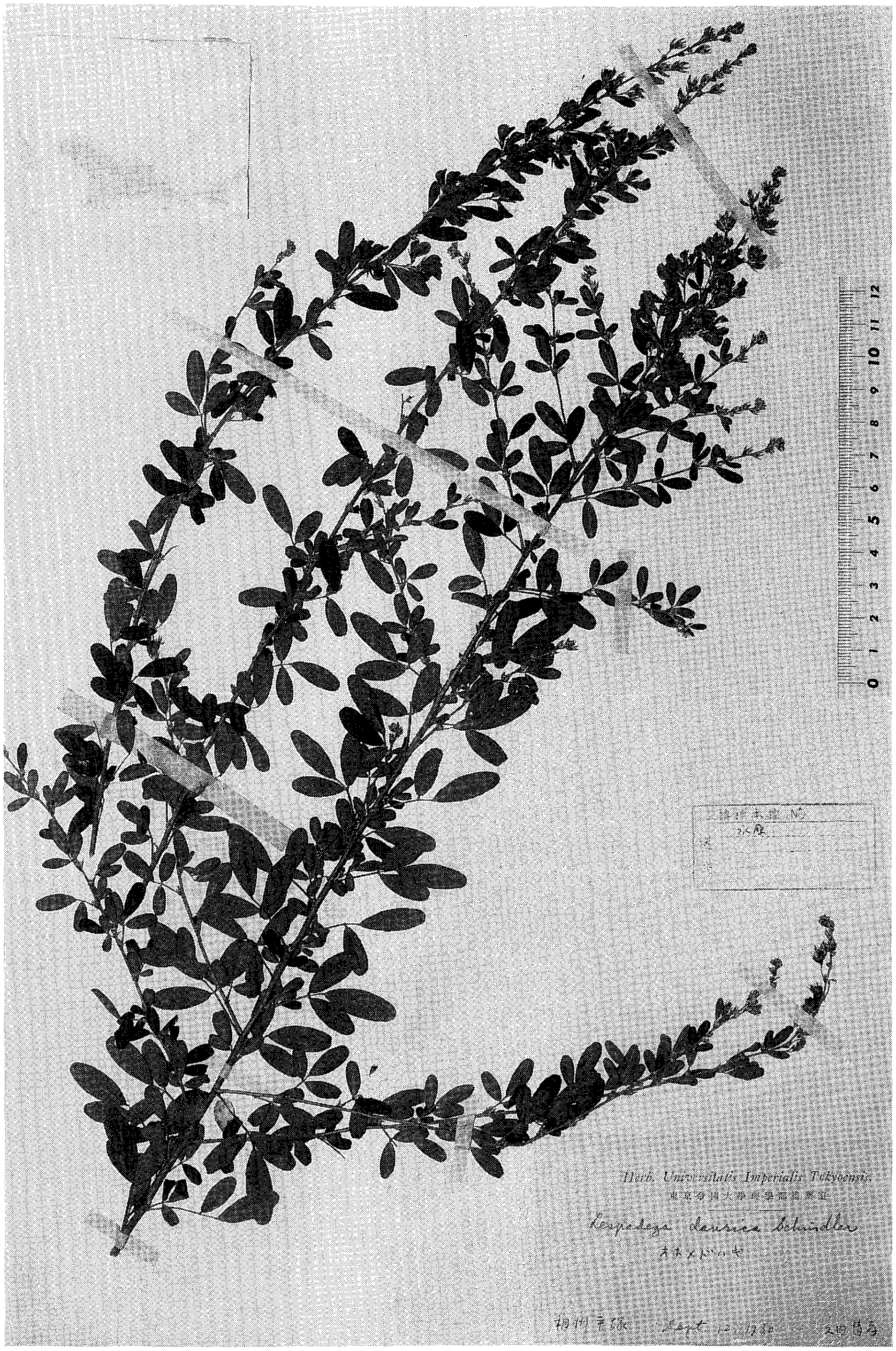
Herb. Universitatis Imperialis Tokyoensis.
Lespedeza davurica Schindler
オホメドハギ
Sept. 12, 1930
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Fig. 1. Holotype specimen of *Lespedeza hisauchii* T.Nemoto & H.Ohashi (K. Hisauchi 12 Sep. 1930, TI).

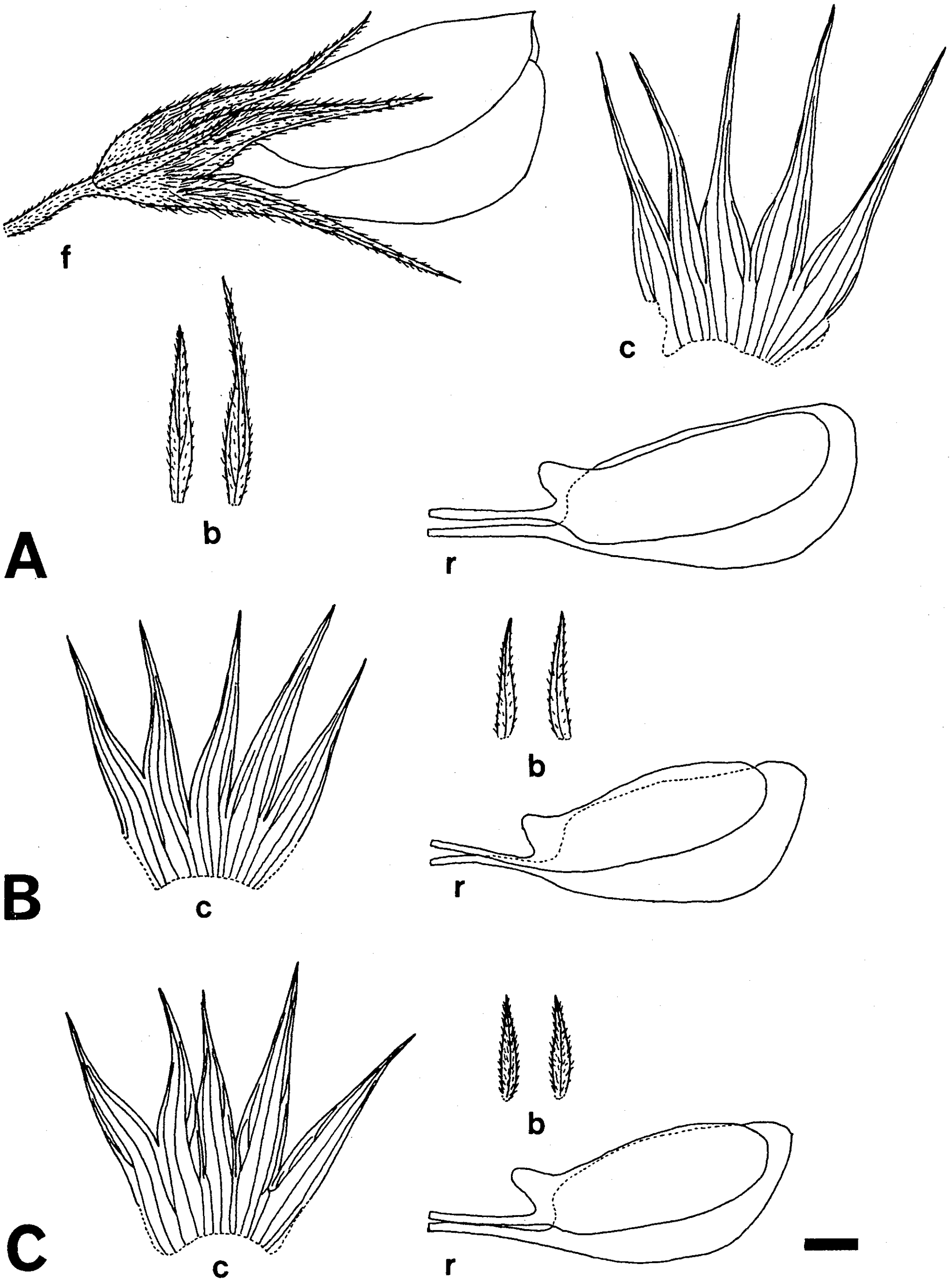

Fig. 2. Flowers of *Lespedeza davurica*. b, bracteoles; c, calyx dissected and opened (view from inside); f, flower; r, wing and keel-petal showing the relative length of both petals. Scale = 1 mm. (Vouchers: A, Coll. unknown 24 Aug. 1909, TI; B, H. Ohashi 11078, TUS; C, Y. Tateishi et al. 21363, TUS)

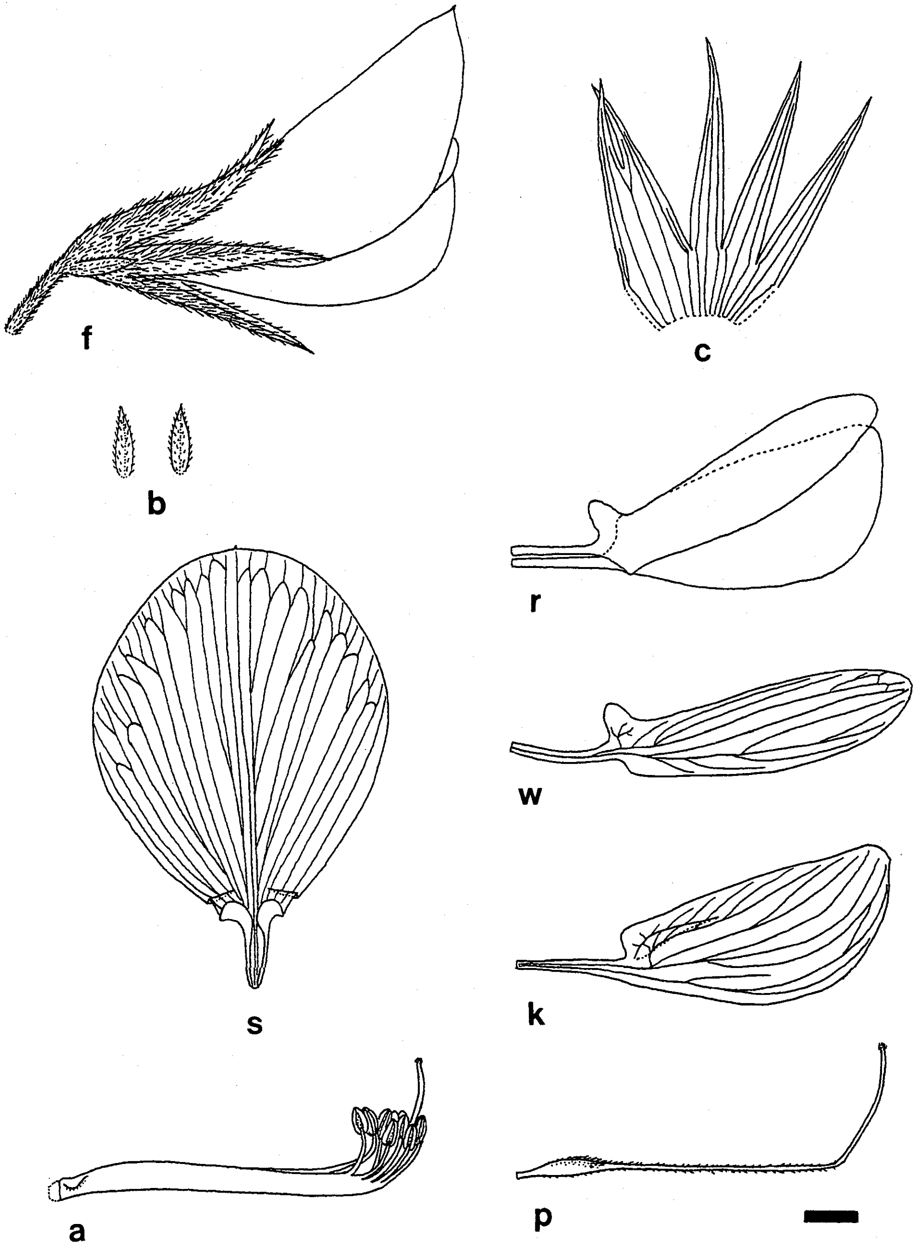

Fig. 3. Flower of *Lespedeza hisauchii*. a, androecium surrounding a pistil; b, bracteoles; c, calyx dissected and opened (view from inside); f, flower; k, keel-petal; p, pistil; r, wing and keel-petal showing the relative length of both petals; s, standard; w, wing. Scale = 1 mm. (Voucher: K. Hisauchi 12 Sep. 1930, TI)

similar to the K. Hisauchi 12 Sep. 1930 (TI): T. Makino Oct. 1931 (MAK, with a few flowers) from Kamata in Prov. Musashi (= the Tokyo metropolitan area) and K. Hisauchi 7 Sep. 1933 (TAI, with flowers) from Hayama in Prov. Sagami (= Kanagawa Pref.).

On the other hand, the specimen identified as *L. davurica* by Hiyama (1959), which was collected from Iwagami in Maebashi City by Mr. Buichi Takei (B. Takei 13 June 1957) and is kept in Numata City Library in Gunma Prefecture. Although this specimen is sterile, it is different from the true *L. davurica* in having inconspicuous lateral veins and the relatively shorter rachis of terminal leaflet in relation to the length of petiole. Moreover, it is different from the K. Hisauchi 12 Sep. 1930 (TI) in having leaflets glabrous above. We regard the B. Takei 13 June 1957 as *L. juncea*. Thus, we have found five specimens in total which are similar to the K. Hisauchi 12 Sep. 1930 (TI).

Although some of these specimens have been misidentified as *L. davurica*, they also appear to be similar in some external features to *L. inschanica* (Maxim.) Schindl., *L. juncea* (L.f.) Pers., and *L. cuneata* (Dum. Cours.) G.Don. However, they are easily distinguished from all these species in having leaflets puberulent above and multicellular glandular hairs on pedicels; from *L. inschanica* in having pedunculate and elongated inflorescences, narrowly triangular calyx lobes, the upper calyx lobe divided less than 1/2 of the length and wings equal to the keel-petals (Fig. 4A); from *L. juncea* in having shorter pedicel, narrowly triangular calyx lobes, the upper calyx lobe divided less than 1/2 of the length and wings equal to the keel-petals (Fig. 4B); and from *L. cuneata* in having more elliptic leaflets with more broadly cuneate base, pedunculate and elongated inflorescences and longer pedicels (Fig. 4C).

Thus, we regarded those six specimens in question as a new species and named it *L. hisauchii* T.Nemoto & H.Ohashi in honor of the late Professor K. Hisauchi who found this plant and collected most of the specimens available at present. Among those six specimens, we chose the K. Hisauchi 12 Sep. 1930 (TI) as the holotype of the species (Fig. 1). On the sheet of this specimen there is a record indicating that a duplicate of the specimen were sent to Suwon (Fig. 1), i.e., the Herbarium, Kwanak Arboretum, College of Agriculture, Seoul National University (SNUA) in South Korea. Although we have not yet examined it, this specimen will be the isotype of *L. hisauchii*.

The taxonomic position of *L. hisauchii* is clear. This species has cleistogamous flowers in sessile and shortened pseudoracemes at the base of inflorescences of chasmogamous flowers or in the axils of leaves. Therefore it is attributed to the subgenus Lespedeza.

Lespedeza hisauchii T.Nemoto & H.Ohashi, sp. nov.

L. davurica auct. non (Laxm.) Schindl.: Nakai in Bot. Mag. Tokyo **46**: 56 (1932). Ohwi, Fl. Jap. 679 (1953); Fl. Jap. Eng. Ed. 560 (1965); Fl. Jap. Rev. Ed. 791 (1965); Fl. Jap. New Ed. Rev. Enl. 791 (1975). Date in Fl. Kanagawensis 128 (1958). Kitamura & Murata, Col. Ill. Herb. Pl. Jap. **2**: 98 (1961); Col. Ill. Herb. Pl. Jap. rev. ed. **2**: 98 (1979). Osada, Ill. Jap. Alien Pl. 114, fig. 234A (1972). Ohwi & Kitagawa, New Fl. Jap. 895 (1983). Hamaguchi in Fl. Kanagawa 1988, Jap. 824 (1988).

Differt haec species a *L. davurica*, *L. juncea* et *L. inschanica* foliolis superne puberulis, pedicellis pilis glanduriferis, calyce lobis lateralibus anguste-triangularibus et posticibus minus quam 1/2 lobi bifidis, alis carinam aequantibus; a *L. davurica* foliolis nervis lateralibus inconspicuis, inflorescentiis 4–8 floribus, bracteolii tubum calycis aequantibus; a *L. inschanica* inflo-

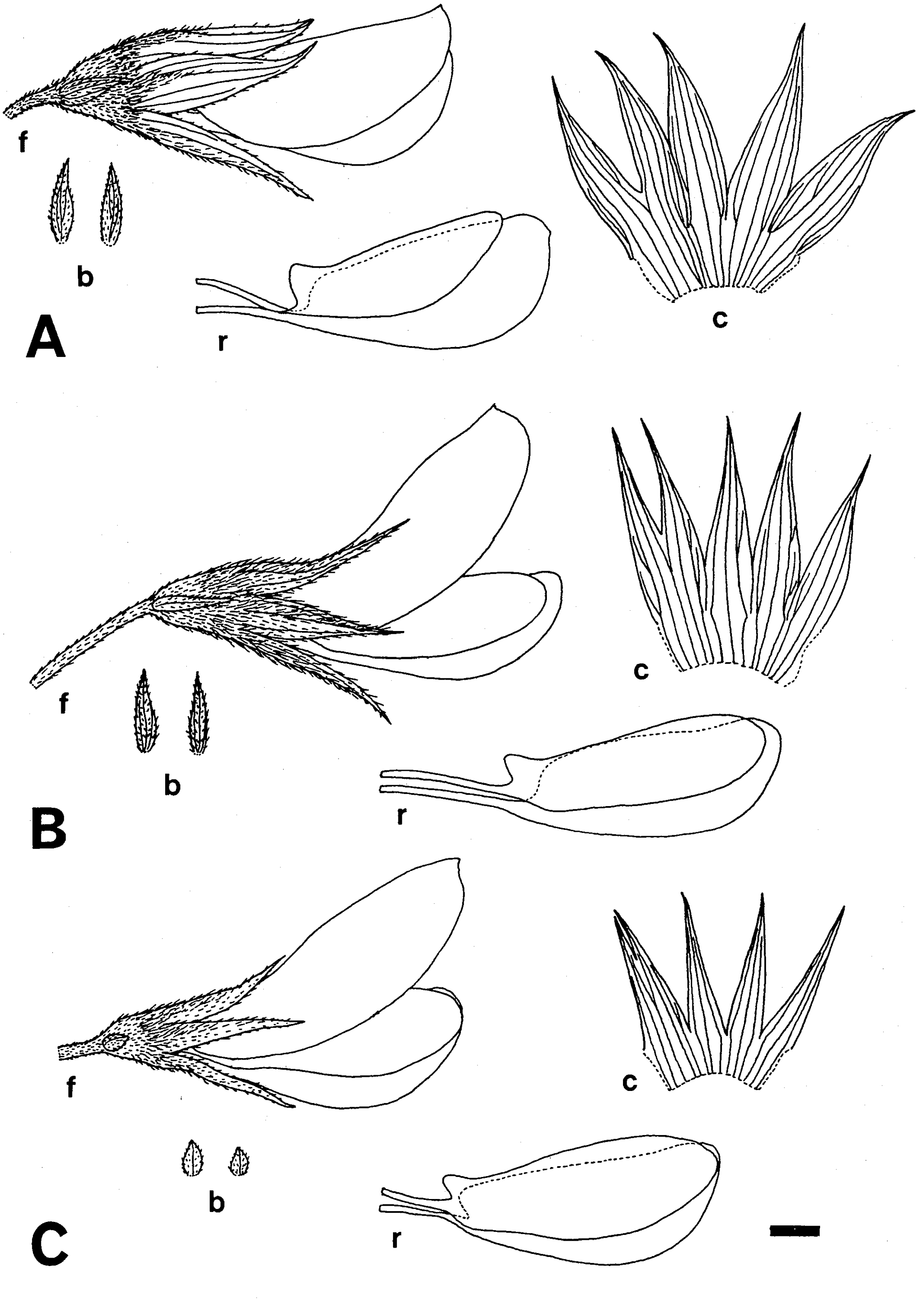

Fig. 4. Flowers of *Lespedeza inschanica* (A), *L. juncea* (B) and *L. cuneata* (C). b, bracteoles; c, calyx dissected and opened (view from inside); f, flower; r, wing and keel-petal showing the relative length of both petals. Scale = 1 mm. (Vouchers: A, T. Uchiyama 12 Sep. 1902, TUS; B, T. Nemoto 2897, TUS; C, T. Nemoto 2898, TUS)

rescentiis elongatis et pedicellis longioribus; a *L. juncea* pedicellis breviolibus; a *L. cuneata* foliolis anguste–ellipticis et superne puberulis, inflorescentiis pedunculatis et elongatis, pedicellis pilis glanduriferis.

Suffrutex. Folia 3-foliolata, petiolata, stipulifera; stipulae persistentes, filiformis–anguste triangulatae, 2.0–3.0(–5.0) mm longae; foliola terminalia elliptica, anguste elliptica, vel anguste obovata, apice obtusa, supra puberula, 9.5–23.5 mm longa, 3.6–8.4 mm lata. Pseudoracemi 4–8-flori, pedunclati; peduncli 6.5–15.5 cm longi. Bracteae primariae triangulares–late triangulares, 0.5–0.8 mm longae, secundariae triangulares, lanceolatae vel ovatae, 0.5–0.6 mm longae. Pedicelli 1.2–2.0 mm longi, pubescentiis appressis et pilis glanduriferis. Bracteolae anguste ovatae, 1.0–1.5 mm longae, tubum calycis fere aequantes. Flores 7.5–8.5 mm longi. Calyx 4-lobis, 4.0–5.2 mm longus, pubescentiis appressis interdum pilis glanduriferis; tubus ca. 1.0 mm longus; lobus superior triangularis–anguste triangularis, 3.5–4.0 m longus, minus quam 1/2 lobi bifidus, lobi laterales et inferiores anguste triangulares, 3.5–4.0 mm longi. Vexillum ca. 8.0 mm longum; lamina late elliptica vel late obovata, ca. 7.0 mm longa × ca. 5.5 mm lata, basi auriculata; unguis ca. 1.3 mm longus. Alae carinam aequantes, anguste obovatae, 7.5–8.0 mm longae; lamina 5.5–6.0 mm longa × ca. 1.5 mm lata, basi auriculata; unguis ca. 2.0 mm longus. Carina anguste obovata vel anguste triangularis, 7.0–7.5 mm longa; lamina 5.0–5.5 mm longa × ca. 2.5 mm lata, basi leviter auriculata; unguis ca. 2.0 mm longus. Stamina 10, diadelpha, ca. 7.0 mm longa. Pistillum ca. 8.0 mm longum, pubescentiis sparsis et appressis; ovarium anguste ellipticum, 1-ovulatum, stipitatum; stylus filamentosus, sursum curvus. Flores cleistogami evoluti. Legumen et semen ignotum.

Nom. Jap. : Sagami-medohagi (nom. nov.).

Typus: JAPAN, Prov. Sagami (= Kanagawa Pref.), Hiratsuka, K. Hisauchi 12 Sep. 1930 (fl.) (TI–holotype, TUS–photo; SNUA–Isotype ?)

Subshrub. Stem short-appressed or spreadingly pubescent. Leaves alternate, stipulate, 3-foliolate, petiolate. Stipules persistent, filiform to narrowly triangular, 2.0–3.0(–5.0) mm long, sparsely appressed puberulent. Petioles (1.0–)2.0–17.0 mm long, sparsely appressed puberulent; pulvini 0.3–0.8 mm long, appressed puberulent. Terminal leaflets slightly larger than the lateral ones, elliptic, narrowly elliptic, or narrowly obovate, 9.5–23.5 mm long × 3.6–8.4 mm wide, the base cuneate or broadly cuneate, the apices obtuse and mucronate, appressed puberulent above and appressed pubescent beneath, the pulvinus 0.5–1.2 mm long, the rachis (0.5–)1.0–5.0 mm long, appressed pubescent; lateral leaflets sessile, pulvinate of 0.3–1.0 mm long.

Inflorescences axillary, equal to or longer than the subtending leaves, pseudoracemose, 4–8-flowered, 2-flowered at a node; peduncles 6.5–15.5 mm long in flower, appressed pubescent; rachis appressed pubescent mixed with multicellular glandular hairs; primary bracts triangular or broadly triangular, 0.5–0.8 mm long, appressed puberulent, secondary bracts triangular, lanceolate or ovate, 0.5–0.6 mm long, appressed puberulent. Pedicels 1.2–2.0 mm long in flower, appressed or spreadingly puberulent mixed with multicellular glandular hairs; bracteoles 2 at the base of calyx, narrowly ovate, 1.0–1.5 mm long, almost equal to calyx tube, appressed puberulent.

Flowers 7.5–8.5 mm long. Calyx 4-lobed, 4.0–5.2 mm long, appressed pubescent and sometimes mixed with multicellular glandular hairs outside; tube ca. 1.0 mm long, upper lobe triangular to narrowly triangular, 3.5–4.0 mm long, 2-toothed at apex, teeth less than 1/2 of the length of the lobe, lat-

Table 1. Pollen stainability of *Lespedeza davurica* and *L. hisauchii*

Species	Specimens examined	Pollen stainability*		
		+	–	%
L. davurica	Korea: T.Nemoto & B.H.Choi 2734-1 (TUS)	467	7	98.5
	China: A.Yamamoto, 23 Aug. 1939 (TNS)	1.220	6	99.5
	Mongolia: M.Takahashi, 14 Aug. 1940 (TNS)	295	238	55.3
L. hisauchii	Hiratsuka: K.Hisauchi, 12 Sep. 1930 (TI)	3	935	0.3
	Hiratsuka: K.Hisauchi, 15 Sep. 1930 (TNS)	15	1.637	0.9
	Hayama: K.Hisauchi, 7 Sep. 1933 (TAI)	9	1.077	0.8

*Pollen stainability: +, no. of stained pollen grains; –, no. of not stained pollen grains; %, percentage of stained pollen grains.

eral and lowest calyx lobes narrowly triangular, 3.5–4.0 mm long, acute at apex. Corolla color uncertain; standard slightly longer than or equal to wings and keel, broadly elliptic or broadly obovate, obtuse and mucronate at apex, inflexed-auriculate at base, ca. 8.0 mm long, lamina ca. 7.0 mm long × ca. 5.5 mm wide, abruptly narrowed to claw, claw ca. 1.3 mm long; wings nearly equal to keel, narrowly obovate, 7.5–8.0 mm long, lamina 5.5–6.0 mm long × ca. 1.5 mm wide, obtuse at apex, auriculate at base, claw ca. 2.0 mm long; keel-petals narrowly obovate or narrowly triangular, 7.0–7.5 mm long, lamina 5.0–5.5 mm long × ca. 2.5 mm wide, obtuse at apex, small auriculate at base, claw ca. 2.0 mm long. Stamens 10, diadelphous, ca. 7.0 mm long, curved upward in distal part, anthers uniform, ovate ca. 0.5 mm long. Pistil sparsely appressed-pubescent, ca. 8.0 mm long; ovary narrowly elliptic, stipitate, uniovulate; style filamentous, curved upward in distal part. Cleistogamous flowers in sessile and shortend pseudoracemes at the base of inflorescences with chasmogamous flowers or in the axils of more distal or proximal leaves. Pods and seeds unknown.

Additional specimens examined: Japan. Prov. Sagami (= Kanagawa Pref.), Hiratsuka, K. Hisauchi 15 Sep. 1930 (fl.) (TNS); Y. Momiyama 58, 20 Sep. 1930 (sterile) (TI). Cultivated in Tokyo, originated from Hiratsuka, Prov. Sagami, Japan, K. Hisauchi 10 Sep. 1931 (fl.) (TI). Prov. Sagami, Hayama, K. Hisauchi 7 Sep. 1933 (fl.) (TAI). Prov. Musashi (= the Tokyo metropolitan area), Kamata, T. Makino Oct. 1931 (fl.) (MAK).

Habitat, distribution and phenology: Near seaside, in pine forest (Flora-Kanagawa Association 1994). This species is known only from the Tokyo metropolitan area and Kanagawa Pref., Honshu, Japan. Flowering September–October.

In order to clarify the reproductive nature of *L. hisauchii*, we examined pollen stainability as an indicator of pollen viability (Lawrence 1951, Hauser and Morrison 1964, Dafni 1992) of three of those six specimens in comparison with the stainability of *L. davurica* from Korea, China and Mongolia (Table 1). Pollen grains were removed on one slide from all anthers of a single flower per specimen, stained with aniline blue in lactophenol (Darlington and La Cour 1960) and, then, observed and counted.

Pollen grains of *L. davurica* represented variation in their stainability. Pollen grains from specimens of China and Korea represented high stainability (98.5–99.5%) and almost all grains were darkly stained and fully swollen, while the stainability of those

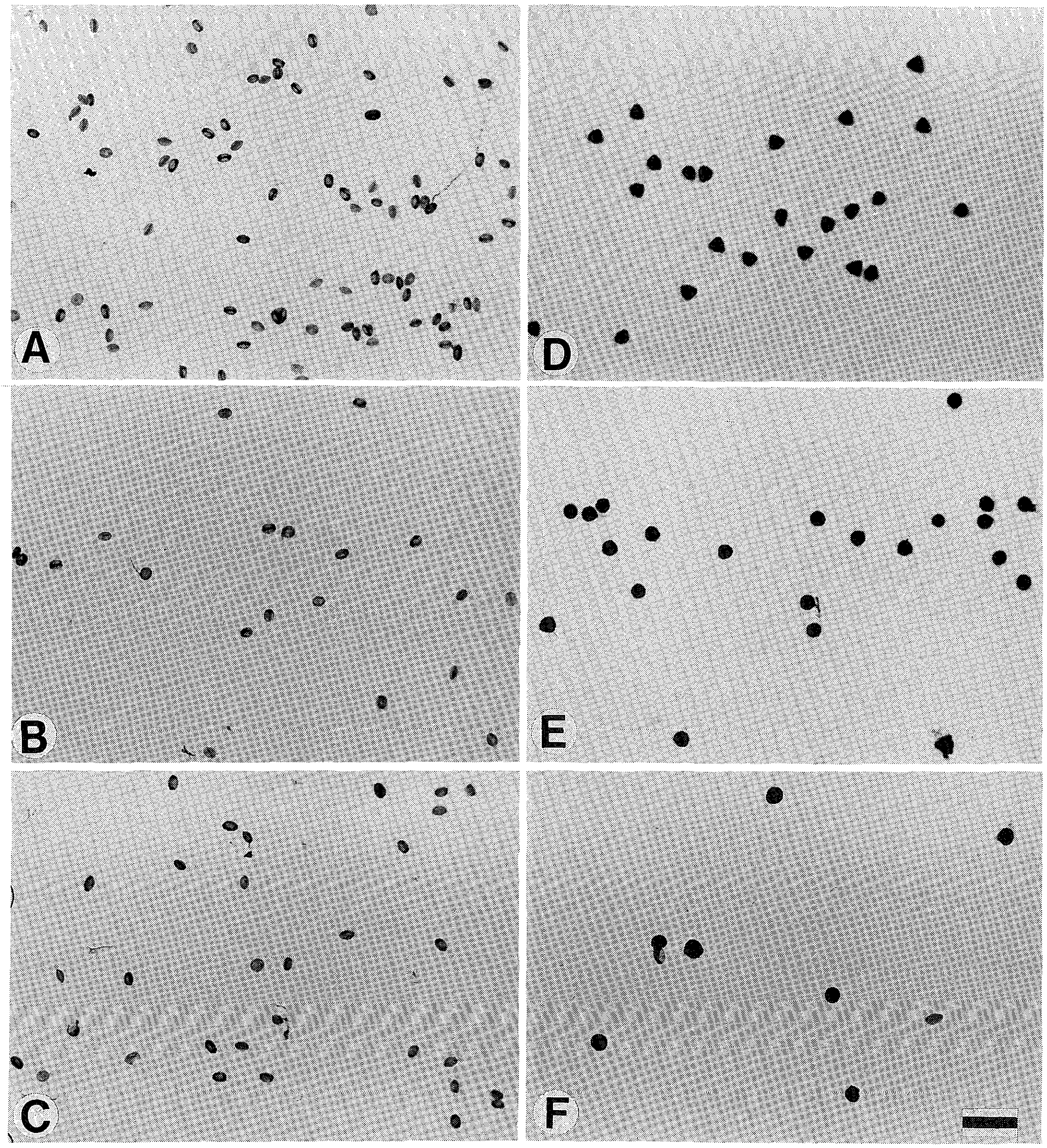

Fig. 5. Pollen grains stained with aniline blue in lactophenol. A–C, *Lespedeza hisauchii*. D–F. *L. davurica*. Scale = 100 µm. (Vouchers: A, K. Hisauchi 12 Sep. 1930, TI; B, K. Hisauchi 15 Sep. 1930, TNS; C, K. Hisauchi 7 Sep. 1933, TAI; D, T. Nemoto & B. H. Choi 2734-1, TUS; E, A. Yamamoto 23 Aug. 1939, TNS; F, M. Takahashi 14 Aug. 1940, TNS)

from Mongolian specimen was 55.3% and a little more than half of grains were darkly stained and fully swollen (Table 1, Fig. 5D–F). On the other hand, pollen grains from the three specimens of *L. hisauchii* represented very low stainability (0.3–0.9%) and almost all grains were shrunken and not darkly stained (Table 1, Fig. 5A–C). Reduction in pollen stainability has generally been known to be occurred in hybrids (Lawrence

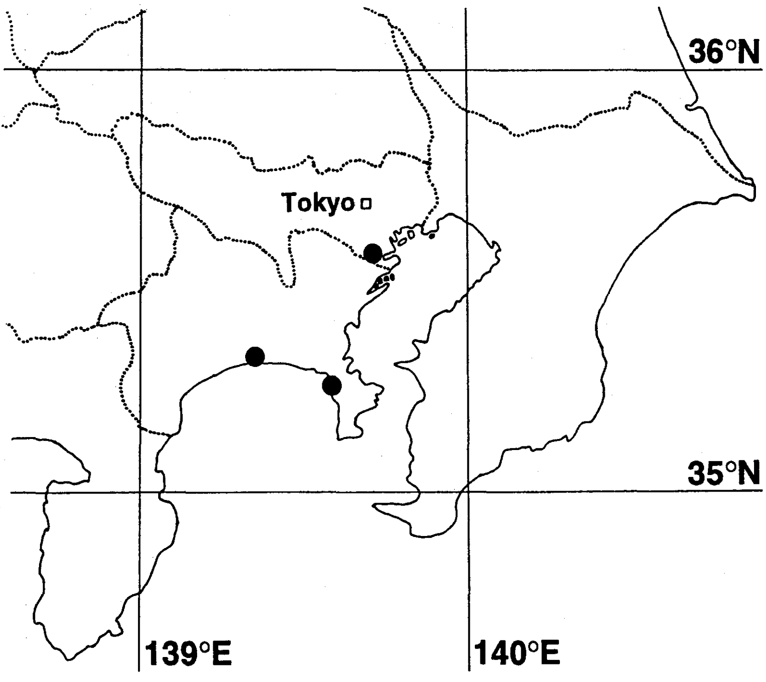

Fig. 6. Distribution map of *Lespedeza hisauchii.*

1951) or to be closely related with polyploidy and apomixis (e.g., Tateoka 1973). This is the case also known in putative hybrids in *Lespedeza* (Clewell 1966, Akiyama and Ohba 1982, 1983a, 1983b). In *L. davurica* the chromosome number has been calculated as 2n = 36 (Cooper 1936), 40 or 42 (Mesicek and Sojak 1972), or ca. 44 (Pierce 1939, Sokolovskaya et al. 1989). Because the basic chromosome number of *Lespedeza* is X = 9, 10 or 11 (Goldblatt 1981), those numbers are regarded as tetraploid or its aneuploid. The variation of pollen stainability found in *L. davurica*, therefore, appears to be closely related with the variation of chromosome number. With respect to *L. hisauchii*, on the other hand, the almost complete reduction in pollen stainability and almost all pollen grains shrunken represented the possibility of the species to be hybrid origin, polyploid or apomictic. However, chromosome numbers, fruits and seeds are unknown in *L. hisauchii*, and, moreover, we could not examine the possibility in detail because no living materials are available at present.

Lespedeza hisauchii were sporadically distributed from SE of Tokyo to SE of Kanagawa Prefecture along seaside (Fig. 6). In the latest flora of Kanagawa Pref., i.e., "Flora of Kanagawa 1988, Japan," Hamaguchi (1988) mentioned no recent records of *L. davurica* which corresponds to *L. hisauchii* in the present study. We tried to find the plant in Hiratsuka and Hayama in 1984, but we failed to do it. Moreover, we tried to find recent specimens collected in Kanagawa Prefecture by examining specimens kept in Kanagawa Prefectural Museum (KPM), Hiratsuka City Museum and Yokosuka City Museum in 1998. However, we could find no specimens of *L. hisauchii.* This species, therefore, appears to have not found again since 1933 when K. Hisauchi collected it from Hayama. Because the environment around Hiratsuka, Hayama and its vicinity in Kanagawa Prefecture and that around Kamata of the Tokyo metropolitan area have been greatly destructed by land development to date, *L. hisauchii* may be already extinct from these regions. In order to clarify the nature and relationships of this species, it is desired to find the living materials in field as soon as possible.

We are grateful to the Curators of KPM, MAK, TAI, TI and TNS for allowing us to examine their collection. We also wish to thank Mr. T. Hamaguchi of Hiratsuka City Museum, Mr. T. Katsuyama of Kanagawa Prefectural Museum, Mr. Y. Omori of Yokosuka City Museum, Messrs. K. Fujii and A. Koike of Numata City Library for their kind cooperation. We thank Dr. H. Kanai for noticing us the record of *L. davurica* from Maebashi City by K. Hiyama, Mr. A. Matsuzawa for telling us the location of the Takei's collection, Drs. J. Murata (now TI) and N. Fujii of MAK for sending a photocopy of a reference, Drs. G. Lazkov and Y. Roskov of the Herbarium, Komarov Botanical Institute for sending a photocopy of the original description of *Trifolium dauricum* and their comment on the spelling of *Lespedeza davurica*. This study was partly supported by a Grant-in-Aid for Japan-Korea Cooperative Science Program (to H.O.) from the Japan Society for the Promotion of Science, and Grant-in-Aid for Basic Science Research Program (Nos. 09640821 and 11640689 to T.N. and No. 10640675 to H.O.) and Grant-in-Aid for the International Scientific Research Programs (No. 10041153 to H.O.) from the Ministry of Education, Science, Sports and Culture, Japan.

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Appendix 1. Voucher specimens of species except *Lespedeza hisauchii*.

Lespedeza cuneata (Dum.Cours.) G.Don

Japan, Miyagi Pref., Sendai, T. Nemoto 2898 (TUS).

L. davurica (Laxm.) Schindl.

Korea: Coll. unknown 24 Aug. 1909 (TI); Kyonggi Prov., Kunja, T. Nemoto & B. H. Choi 2734–1 (TUS). China: Beijing, H. Ohashi 11078 (TUS); Shandong Prov., Mengyin Xian, A. Yamamoto 23 Aug. 1939 (TNS). Taiwan, Taichung, Tachia, Y. Tateishi et al. 21363 (TUS). Mongolia, Bonboluobo, M. Takahashi 14 Aug. 1940 (TNS).

L. inschanica (Maxim.) Schindl.

Korea, Heijo (= P'yongyang), Botandai, T. Uchiyama 12 Sep. 1902 (TUS).

L. juncea (L.f.) Pers.

Japan, Miyagi Pref., Sendai, T. Nemoto 2897 (TUS).

根本智行[a], 大橋広好[b]: 日本産マメ科ハギ属の一新種

オオバメドハギ *Lespedeza davurica*(Laxm.) Schindl.はキルギスタン，モンゴル，シベリア南東部，中国にかけて広く分布する．また，海を隔てて日本および台湾にもごく限られた地域に本種の分布が報告されている．日本に本種が分布することを初めて報告したのはNakai (1932) であり，これは現在の神奈川県平塚から久内清孝氏によって採集された標本にもとづいたものであった．その後，Ohwi (1865a) と長田 (1972) は平塚のオオバメドハギが帰化である可能性を示唆しており，また，オオバメドハギは群馬県前橋市にも帰化していることが報告されている (檜山 1959，戸部ら 1968, 1987)．

ハギ属メドハギ亜属の分類学的研究の一環とし

て，平塚産オオバメドハギを再検討したところ，本来のオオバメドハギとは異なることが明らかになった．Nakai (1932)の同定した標本は東京大学(TI)にある．この標本を調べた結果，平塚産のものは，小葉の上面に短伏毛が生えること，小葉の側脈が不明瞭なこと，葉柄に対する葉軸の相対長がより短いこと，1花序当たりの花数が4－8と少ないこと，小苞が萼筒とほぼ同長で，萼は花冠の長さの約半分であること，萼裂片が狭三角形で頂萼裂片の切れ込みが萼裂片の長さの半分より短いこと，翼弁が竜骨弁とほぼ同長であること，花序の特に小花柄に多細胞からなる腺毛をもつことで，オオバメドハギと異なっていた．また，平塚産標本と共通の特長をもつ標本が東京大学から2枚，国立科学博物館から1枚，東京都立大学から1枚，および台湾大学から1枚見つかった．

一方，檜山(1959)がオオバメドハギとみなした前橋市産の標本は，武井武一氏が前橋市岩神で1957年6月13日に採集した標本であり，現在，群馬県沼田市立図書館に保管されている．この標本を検討したところ，カラメドハギ（*L. juncea* (L.f.) Pers.）であった．

したがって，これまでに確認できた「平塚産オオバメドハギ」とそれに類似する標本は計6点となる．これら6点の標本はいずれも日本産のもので，オオバメドハギに近縁な *L. inschanica* (Maxim.) Schindl.，カラメドハギおよびメドハギ（*L. cuneata* (Dum.Cours.) G.Don）からも小葉上面の短毛の有無，萼裂片の形，頂萼裂片の切れ込みの程度，多細胞の腺毛の有無，花序軸や小花軸の長さ，翼弁と竜骨弁の相対長などで区別できることがわかった．

以上の事実から，平塚産オオバメドハギおよびその他5点の標本からなる植物は新種であると判定できる．これを *L. hisauchii* T.Nemoto & H.Ohashi（サガミメドハギ）と命名する．この新種は閉鎖花をつけることから，メドハギ亜属に属するものである．

サガミメドハギは東京都蒲田から三浦半島をへて神奈川県平塚にかけて海岸沿いに分布していたと推測できる．生息地について，籾山氏の談話では，「ハナハタザオやオオバメドハギがあるのは平塚の松林でスカシユリが咲き，小松の中にはカワラナデシコ，チガヤもそよいでいました」（籾山泰一先生論文集－卒寿記念－，p. 11，神奈川県植物誌調査会 1994）という．しかし，神奈川県立生命の星·地球博物館，平塚市博物館，横須賀市博物館に納められている標本を調べたが，サガミメドハギの標本は見あたらない．久内氏が1933年に神奈川県葉山で採集して以来，一度も採集されていない可能性がある．また，これらの地域は大規模な土地開発がなされており，本種はすでに絶滅してしまっている可能性がある．

なお，本新種の生殖様式を明らかにするため，花をつける3枚の標本について，花粉稔性の指標とされるコットンブルーによる花粉の染色性を調べた．その結果，いずれの標本も染色性が0.3－0.9％と非常に低く，しかも十分に膨らんだ花粉粒はほとんどみられないことが判明した．一般に，花粉染色性の低下は，雑種起源，倍数性あるいは無融合生殖の可能性を示唆するものである．しかし，本種に関しては，染色体数や果実と種子の形成は知られておらず，生きた個体も発見されていないため，現時点では生殖様式を検証することができない．本種の生殖様式や類縁関係を明らかにするためにも，一刻も早い再発見が望まれる．

（[a]石巻専修大学理工学部基礎理学科，
[b]東北大学大学院理学研究科生物学専攻）